

Monitoring of Vulnerable Drinking Water Sources for Hexavalent Chromium

- Anticipated Regulatory Requirements
- Department's Request to Drinking Water Utilities
- The list of laboratories certified for hexavalent chromium testing in drinking water is now available.

Recently, the public has expressed concern related to possible exposure to hexavalent chromium via drinking water. To begin to address that concern, the Department of Health Services Division of Drinking Water and Environmental Management (Department) has drafted a regulation package that would add hexavalent chromium to the list of unregulated chemicals for which monitoring would be required in *vulnerable* drinking water sources.

As you know, total chromium in drinking water is currently monitored for compliance with an MCL of 50 µg/L. Total chromium measures the combined levels of trivalent and hexavalent chromium; the trivalent is relatively nontoxic, while the hexavalent is a carcinogen in animal studies. In 1999, the Office of Environmental Health Hazard Assessment (OEHHA) of Cal/EPA established a public health goal (PHG) of 2.5 µg/L for total chromium, based on a health protective level of 0.2 µg/L for hexavalent chromium (cancer endpoint) and the assumption that the hexavalent chromium is no more than 7.2% of the total chromium. A very limited study of drinking water sources conducted by the Department in late 1999 indicated that the hexavalent chromium percentage may average above 50%.

In order to collect more data on the occurrence of hexavalent chromium and its relationship to the total chromium present, the Department is proposing to add hexavalent chromium to the unregulated chemical monitoring list. This would enable the Department to review both total and hexavalent chromium data for the same sampling sites. With such data, the Department could determine whether a separate MCL for hexavalent chromium should be established. The data would also provide direction related to the current "total chromium" MCL.

The draft monitoring regulation may be adopted on an emergency basis and, if so, could possibly be effective before the end of the year. Once effective, water systems with historical detects for total chromium or with a risk to chromium contamination would be considered vulnerable. Vulnerable water systems would be required to be monitored according to the following: A single round of four quarters for surface water; and two samples six months apart with one taken during the most vulnerable time for groundwater. This monitoring approach is consistent with the new federal unregulated chemical monitoring regulation. The draft regulations are posted on the web site at <http://www.dhs.ca.gov/ps/ddwem/index.htm>.

The Department would like to start collecting hexavalent chromium data as soon as possible. To that end, the Department has sent a letter to drinking water utilities requesting that those with vulnerable sources initiate monitoring as soon as possible. The draft regulations provide for grandparenting of this data, so it would subsequently serve to meet the new monitoring requirements, once adopted.

The method to be used for the determination of dissolved hexavalent chromium in drinking water/ground water is EPA method 218.6 using ion-chromatography with a high capacity anion exchange separator column and a UV/VIS detector. Post column derivatization of the Chromium VI with diphenylcarbazide is followed by quantitation of the colored complex at 530 nm. The reporting level is set at 1 µg/L; sample collection, preservation, storage, and analysis must be as described in the referenced method.

Laboratories interested in performing this method must file an amendment application together with the required field of testing fee to ELAP. The details of the availability of the

Performance Evaluation (PE) samples will be provided at a later date. The department will grant interim certification upon successful completion of the PE study.

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